REMARKS

This submission is in response to the Official Action dated December 31, 2002. Claims 1-11 are of record.

The drawings are objected to as not showing the subject matter of claim 6. A proposed new Fig. 3 is submitted, together with a Drawing Change Authorization Request, which shows the feature of a monochromotor comprising one slit. The Specification has been amended at page 7 to describe Fig. 3. The previously amended paragraph at lines 23-26 of page 9, also has been further amended (from the original version) to refer to Fig. 3. No new matter is added.

Claim 11, rejected under §112, has been cancelled.

Claims 1-5 and 9 are rejected as unpatentable over Minami, JP 08292096 in view of Rogers, U.S. 6,118,583.

The Examiner recognizes that Minami does not disclose the feature of the present invention of the coefficient of linear expansion of the focal length of the concave mirrors and the coefficient of linear expansion of the substrate should be approximately the same. For this feature the Examiner relies on Rogers.

Rogers is basically directed to an imaging system that operates in the infra-red range. Rogers does not specifically teach the monochromator as claimed in the subject invention. Rogers broadly discloses that the mirrors of the optical system together with the support structure are made of materials with substantially the same coefficient of thermal expansion. In Rogers, the mirrors are of aluminum (column 2, lines 3-5) zinc sulphide or

germanium (see Tables at columns 6-9). In the preferred embodiment of the present invention, the mirrors are of glass or a glass composite (see page 9, lines 11-18).

The Examiner states that it is well known in the art to have optical components and their supporting structures of an optical system have the same coefficient of thermal expansion, in order to have an inherently athermalized optical system. However, as noted above, Rogers does not teach or suggest a monochromator which is a structure in which the resolving power of the wavelength is satisfactorily preserved even if the ambient temperature around the monochromator is changed. The combination of Rogers with Minami is improper since Rogers does not teach or suggest the monochromator of the claims. It is respectfully submitted that the Examiner is making the combination using hindsight.

Accordingly, claims 1-5 and 9 are patentable over the combination of Minami and Rogers and should be allowed.

Claims 6-8 and 10 are rejected over Mori, et al., U.S. 6,166,805 in view of Tondello, et al., U.S. 4,254,335 and Rogers.

Mori does not teach an apparatus in which the optical components are fixed to a substrate. Mori also is silent concerning the problem solved by the present invention relative to the coefficient of linear expansion.

Tondello discloses an apparatus in which optical components are fixed to a substrate. However, it is silent concerning the coefficient of linear expansion.

Rogers is again relied on for the broad teaching of an optical system that recognizes the problem of thermal expansion. However, as discussed above, Rogers is not

directed to a monocromator and does not recognize the problems caused by thermal expansion in such an apparatus and the novel solution provided by applicants. The combination of Rogers with the other two patents is also improper for the reasons given above. Therefore, the subject matter of claims 6-8 and 10 patentably defines over this combination of references and should be allowed.

As discussed above, Rogers discloses mirrors that are made of aluminum. However, Rogers does not disclose or suggest a material used for the substrate which has the same coefficient of thermal expansion as glass when glass is used for the mirror as in the preferred embodiment of the present invention.

Claims 12-14 is a set of claims that depends from independent claim 1 and claims 15-17 is a set that depends from independent claim 6. These claims specifically recite the concave mirrors as being of glass (claims 12 and 15), a specific recitation of the difference of the coefficient of expansion between the glass mirror(s) and the substrate (claims 13 and 16), and the substrate which is of an aluminum ceramic composition (claims 14 and 17). As explained above, Rogers does not show the glass mirrors. This feature is advantageous since glass is often less expensive and also can be processed to the proper lens surface by readily available tools and processes. These features provide a further basis for allowability so that claims 12-17 also are patentable.

The other art cited has been considered and is not deemed pertinent.

In view of the above amendments and remarks, it is respectfully requested that the application be reconsidered and that all pending claims be allowed and the case passed

to issue.

If there are any other issues remaining which the Examiner believes could be resolved through either a Supplemental Response or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned at the telephone number indicated below.

Prompt and favorable action is requested.

Respectfully submitted,

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